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Decision Support for Quality Improvement
Unit 6.3: Alerts and Clinical Reminders

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Objectives

- Analyze the benefits and shortfalls of alerts and clinical reminders

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Reminders and Alerts

“...the burden of reminders and alerts must not be too high...or alert fatigue may cause clinicians to override both important and unimportant alerts, in a manner that compromises the desired safety effect of integrating decision support into CPOE.”

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Alerts and Reminders

<p>Nuisance Alert</p> <ul style="list-style-type: none"> • "...provides little perceived benefit to the prescriber at the time of the alert" 	<p>Alert Fatigue</p> <ul style="list-style-type: none"> • "...arise when clinicians, either consciously or unconsciously, begin to systematically bypass CDS alerts without regard to their importance, enabling the possibility that a clinically important alert is missed"
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Responses to Clinical Reminders

<p>Compliance</p>	<ul style="list-style-type: none"> • Tendency to perform an action when a warning system instructs the user to do so
<p>Reliance</p>	<ul style="list-style-type: none"> • Tendency to refrain from performing an action when the warning system does not indicate that it is necessary

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Responses to Clinical Reminders

<p>Spillover</p>	<ul style="list-style-type: none"> • Clinician performs an action even when not prompted by the reminder system
<p>Reactance</p>	<ul style="list-style-type: none"> • Clinician refrains from performing an action due to a perceived threat to professional autonomy

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Four Types of Alerts/Reminders

Drug Alerts	Practice Reminders
Lab Test Alerts	Administrative Reminders

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Basic Drug Alerts

- Drug allergy warnings
- Drug-drug interactions
- Duplicate medication or therapeutic duplication alert
- Basic medication order guidance

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Advanced Drug Alerts

- Drug-Lab alerts
- Drug-Condition interactions
- Drug-Disease Contraindication alerts
- Drug-condition alerts aimed at appropriate prescribing

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Advanced Drug Alerts

Drug-age alerts

Drug-formulary alerts

Dosing guidelines

Complex prescribing alerts

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Evidence to Support Drug Alerts

- Systematic review examined 20 studies that evaluated the impact of efficacy of computerized drug alerts and prompts
 - 23 of 27 alert types identified demonstrated benefit
 - Improving prescribing behavior
 - Reducing error rates
 - Greatest potential for affecting prescribing
 - Drug-drug interaction alerts
 - Drug-disease contraindication alerts
 - Dosing guidelines based on age

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Improving Adoption of Drug Alerts

- Shah and colleagues studied way to improve clinician acceptance of drug alerts in ambulatory care settings
 - Designed a selective set of drug alerts for the ambulatory care setting using a criticality leveling system
 - Minimized workflow disruptions by designating only critical to high-severity alerts to be interruptive to clinician workflow
- Alert levels:
 - 1: clinician could not proceed with the prescription without eliminating the contraindication;
 - 2: clinicians could proceed if provided an over-ride reason
 - 3: alert displayed at top of screen in red; did not hinder workflow

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Basic Laboratory Alerts

- Drug-laboratory alerts
- Duplicate laboratory testing alert
- Basic laboratory test order guidance
- Public health situational awareness

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Evidence to Support Lab Alerts

- Research examined the impact of a clinical decision support system that generated reminders of previous lab test results
- Found that the proportion of unnecessarily repeated tests dropped significantly
- Features of the Alert
 - Alert was automatically prompted and was part of the clinician workflow
 - User could not deactivate the alert output
 - Most recent laboratory result for viral serology test on its date was automatically retrieved from the patient's EHR
 - Alert was displayed at the time and location of decision making (before the user ordered an unnecessarily repeated test)

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Practice Reminders

- Guiding** • Provides recommended treatment
- Critiquing** • Checks prescriptions against clinical practice guidelines
- Monitoring** • Helps provider follow the patient

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Practice Reminders
Challenges

- Incorrect Guidelines
- Too generic guideline
- Patient data inconsistency
- Inappropriate action
- Potential Risk

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Administrative Reminders

- Medical Coding**
 - Guides prescribers to document to support appropriate medical coding
- Quality Improvement**
 - Guides the collection of QI indicator data

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Success Factors: Alerts

- Specificity**
 - Alert clinically important for the patient
- Sensitivity**
 - Alert generated in all dangerous cases

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Success Factors: Alerts

Information Content

- Clear, concise, unambiguous
- Justification noted
- Further information accessible
- Alternative actions presented

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Success Factors: Alerts

Workflow

- Directed to right person at right time
- Specialty-specific; Knowledge-specific
- Avoid repetition

Safe, efficient handling

- High threshold
- Reasons for non-compliance
- Promotes action
- Speed; Screen design; minimize work

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Summary

- Alerts and reminders have the potential to improve patient safety
- Types of alerts and reminders include: drug and lab test alerts, practice reminders, and administrative reminders
- Nuisance alerts provide little perceived benefit to the prescriber at the time of the alert, causing clinician frustration and alert fatigue
- Successful alerts are specific, sensitive, clear and concise.
- Successful alerts support clinical workflow and allow for safe, efficient responses.

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